

Claims

[c1] What is claimed is:

1. A method for performing a target search on an optical storage disc, the optical storage disc storing storage information and including track information, the method comprising the following steps:

(a) generating a first intermediate signal according to a readout signal generated by an optical storage device reading the storage information;

(b) generating a second intermediate signal according to the track information carried within the readout signal;

(c) generating a hybrid address signal according to the first and second intermediate signals, wherein the hybrid address signal corresponds to the first and second intermediate signals, and the hybrid address signal is synchronized with the second intermediate signal; and

(d) performing the target search on the optical storage disc according to the hybrid address signal and a target address set by the optical storage device.

[c2] 2. The method of claim 1, wherein the storage information includes logical addresses, and step (a) generates the first intermediate signal according to the logical ad-

dresses.

- [c3] 3. The method of claim 2, wherein the optical storage disc is a Digital Versatile Disk (DVD), the first intermediate signal is a sector identification signal, and step (a) further comprises:
demodulating the readout signal to generate a sector synchronization signal and a demodulated signal; and
decoding the storage information carried within the demodulated signal according to the sector synchronization signal to generate the first intermediate signal.
- [c4] 4. The method of claim 1, wherein the track information is information of physical wobbles, and step (b) generates the second intermediate signal according to the information of the physical wobbles.
- [c5] 5. The method of claim 4, wherein the optical storage disc is a Digital Versatile Disk (DVD), the second intermediate signal is a physical synchronization signal, and step (b) further comprises:
slicing the readout signal to generate a wobble data signal;
demodulating the wobble data signal to generate a channel-bit signal corresponding to a physical address;
and
decoding the channel-bit signal to generate the second

intermediate signal, wherein when interruption of the wobble data signal together with the channel-bit signal occurs, generating the second intermediate signal according to a period of the previously generated physical synchronization signal.

[c6] 6. The method of claim 1, wherein the optical storage disc is a Digital Versatile Disk (DVD), the first intermediate signal is a sector identification signal, the second intermediate signal is a physical synchronization signal, and step (c) further comprises:
generating an identification sampling signal according to the first intermediate signal, wherein the identification sampling signal includes simplified information of logical addresses carried within the first intermediate signal, and the identification sampling signal corresponds to the first intermediate signal; and
generating the hybrid address signal according to the identification sampling signal and the second intermediate signal, wherein the hybrid address signal includes the simplified information, and the hybrid address signal corresponds to the identification sampling signal and the second intermediate signal.

[c7] 7. The method of claim 1 further comprising:
(e) generating a counter value according to the readout signal;

wherein step (d) is capable of controlling accuracy of the target search according to the counter value.

- [c8] 8. The method of claim 7, wherein the optical storage disc is a Digital Versatile Disk (DVD), the first intermediate signal is a sector identification signal, the second intermediate signal is a physical synchronization signal, and step (e) further comprises:
slicing the readout signal to generate a wobble signal;
and
generating the counter value according to a waveform of the wobble signal.
- [c9] 9. The method of claim 8, wherein step (e) further comprises:
filtering out a glitch within the wobble signal.
- [c10] 10. The method of claim 7, wherein when the optical storage disc does not store any storage information, step (d) further comprises performing the target search according to the counter value.
- [c11] 11. A circuit installed in an optical storage device for performing a target search on an optical storage disc, the optical storage disc storing storage information and including track information, the circuit comprising:
a first signal generator for generating a first intermediate

signal according to a readout signal generated by the optical storage device reading the storage information; a second signal generator for generating a second intermediate signal according to the track information carried within the readout signal; a third signal generator electrically connected to the first and second signal generators for generating a hybrid address signal according to the first and second intermediate signals, wherein the hybrid address signal corresponds to the first and second intermediate signals, and the hybrid address signal is synchronized with the second intermediate signal; and a target search module electrically connected to the third signal generator for performing the target search on the optical storage disc according to the hybrid address signal and a target address set by the optical storage device.

[c12] 12. The circuit of claim 11, wherein the storage information includes logical addresses, and the first signal generator generates the first intermediate signal according to the logical addresses.

[c13] 13. The circuit of claim 12, wherein the optical storage disc is a Digital Versatile Disk (DVD), the first intermediate signal is a sector identification signal, and the first signal generator further comprises:

a data path unit (DPU) for demodulating the readout signal to generate a sector synchronization signal and a demodulated signal; and

a sector identification decoder electrically connected to the DPU and the third signal generator for decoding the storage information carried within the demodulated signal according to the sector synchronization signal to generate the first intermediate signal.

[c14] 14. The circuit of claim 11, wherein the track information is information of physical wobbles, and the second signal generator generates the second intermediate signal according to the information of the physical wobbles.

[c15] 15. The circuit of claim 14, wherein the optical storage disc is a Digital Versatile Disk (DVD), the second intermediate signal is a physical synchronization signal, and the second signal generator further comprises:
a slicer for slicing the readout signal to generate a wobble data signal;
a physical address demodulating circuit electrically connected to the slicer for demodulating the wobble data signal to generate a channel-bit signal corresponding to a physical address; and
a sync pattern decoding circuit electrically connected to the physical address demodulating circuit and the third signal generator for decoding the channel-bit signal to

generate the second intermediate signal, wherein when interruption of the wobble data signal together with the channel-bit signal occurs, the sync pattern decoding circuit generates the second intermediate signal according to a period of the previously generated physical synchronization signal.

- [c16] 16. The circuit of claim 11, wherein the optical storage disc is a Digital Versatile Disk (DVD), the first intermediate signal is a sector identification signal, the second intermediate signal is a physical synchronization signal, and the third signal generator further comprises:
an identification sampling signal generating unit electrically connected to the first signal generator for generating an identification sampling signal according to the first intermediate signal, wherein the identification sampling signal includes simplified information of logical addresses carried within the first intermediate signal, and the identification sampling signal corresponds to the first intermediate signal; and
a hybrid address signal generating unit electrically connected to the identification sampling signal generating unit and the second signal generator for generating the hybrid address signal according to the identification sampling signal and the second intermediate signal, wherein the hybrid address signal includes the simplified

information, and the hybrid address signal corresponds to the identification sampling signal and the second intermediate signal.

- [c17] 17. The circuit of claim 11 further comprising:
a counting module electrically connected to the target search module for generating a counter value according to the readout signal;
wherein the target search module is capable of controlling accuracy of the target search according to the counter value.
- [c18] 18. The circuit of claim 17, wherein the counting module further comprises:
a slicer for slicing the readout signal to generate a wobble signal; and
a counter coupled to the slicer and the target search module for generating the counter value according to a waveform of the wobble signal.
- [c19] 19. The circuit of claim 18, wherein the counting module further comprises:
a de-glitch unit electrically connected to the slicer and the counter for filtering out a glitch within the wobble signal.
- [c20] 20. The circuit of claim 17, wherein when the optical

storage disc does not store any storage information, the target search module performs the target search according to the counter value.